Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended)   A method for authentication of an entity in a motive vehicle by a trusted gateway residing in the vehicle, the method comprising steps of:

   receiving a request for service for the entity, wherein the entity is at least one of a wireless gateway, a vehicle system, and a user system;

   determining whether the entity is an authenticated entity;

   authenticating the entity to produce an authenticated entity, when the entity is not an authenticated entity by a) requesting, from the entity, a certificate comprising a vehicle manufacturer signature, b) receiving a message comprising the requested certificate, and c) determining whether the entity is an authenticated entity based on the received message; and

   granting the request for service.

2. (original)   The method of claim 1, wherein the step of determining whether the entity is an authenticated entity comprises a step of determining whether the entity is an authenticated entity by reference to a list of authenticated entities.

3. (original)   The method of claim 1, further comprising a step of adding the entity to a list of authenticated entities when the entity is authenticated.

4. (withdrawn)

5. (withdrawn)

6. (original)   The method of claim 5, wherein the message comprising the requested certificate further comprises an entity signature and an entity manufacturer signature.

7. (original)   The method of claim 6, wherein the step of authenticating the entity further comprises steps of:

verifying at least one of the vehicle manufacturer signature, the entity signature, and the entity manufacturer signature; and

wherein the step of determining whether the entity is an authenticated entity comprises a step of determining whether the entity is an authenticated entity based on the verification of at least one of the vehicle manufacturer signature, the entity signature, and the entity manufacturer signature.

8. (currently amended)   ~~A method for authentication of an entity in a motive vehicle~~ by a trusted gateway residing in the vehicle, the method comprising steps of:

receiving a request for service for the entity, wherein the entity is at least one of a wireless gateway, a vehicle system, and a user system;

determining whether the entity is an authenticated entity;

authenticating the entity to produce an authenticated entity, when the entity is not an authenticated entity by ~~The method of claim 1, wherein the step of authenticating the~~ ~~entity comprises steps of:~~

(a) generating a first random number; (b) conveying, to the entity, the first random number and a request that the entity send a certificate comprising a vehicle manufacturer signature; and (c) receiving a message comprising the certificate having a vehicle manufacturer signature and further comprising an entity signature, an entity manufacturer signature, the first random number, and a second random number; ~~and~~

wherein the step of determining whether the entity is an authenticated entity comprises a step of determining whether the entity is an authenticated entity based on the verification of at least one of the vehicle manufacturer signature, the entity signature, and the entity manufacturer signature.

9. (original)   The method of claim 1, further comprising steps of:

when the entity is an authenticated entity, generating a session key; and

securely conveying the session key to the authenticated entity.

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10. (original) The method of claim 1, further comprising a step of determining whether to reprogram the entity when the second entity is an authenticated entity.

11. (original) The method of claim 10, wherein the step of determining whether to reprogram the entity comprises steps of:

retrieving vehicle system status information from the entity; and

determining whether to reprogram the entity based on the retrieved vehicle system status information.

12. (original) The method of claim 10, further comprising steps of

in response to a determination to reprogram the entity, reprogramming the entity with new software;

when the entity is reprogrammed, executing the new software by the entity to produce a result;

conveying the result to the trusted entity; and

determining whether the reprogramming is successful based on the result.

13. (original) The method of claim 12, wherein the entity is a vehicle system that comprises vehicle system status information and wherein the method further comprises steps of:

retrieving vehicle system status information from the entity; and

transmitting the retrieved vehicle system status information.

14. (original) The method of claim 13, further comprising a step of receiving new software in response to the transmission of vehicle system status information.

15. (original) The method of claim 13, wherein the vehicle system status information comprises at least one of a current date, a current time, a current location of the vehicle, a current mileage of the vehicle, a vehicle identification number, and an engine diagnostic code.

16. (original) The method of claim 1, further comprising steps of:

when the entity is determined to be an authenticated entity, generating a session key; and

securely conveying the session key to the authenticated entity.

17. (currently amended) An apparatus for authenticating an entity in a vehicle, the apparatus comprising:

a first, trusted entity residing in the vehicle that receives a service request from a second entity residing in the vehicle, determines whether the second entity is an authenticated entity in response to the request, when the second entity is not an authenticated entity, authenticates the second entity to produce an authenticated entity by verifying at least one of a vehicle manufacturer signature, a second entity manufacturer signature, and a second entity signature of a certificate received from the second entity, and grants the service request,

wherein the trusted entity is a vehicle gateway, and

wherein the second entity is one of a wireless gateway, a vehicle system, and a user system.

18. (original) The apparatus of claim 17, wherein the trusted entity stores a list of authenticated entities and determines whether the second entity is an authenticated entity by reference to the list.

19. (original) The apparatus of claim 17, wherein the trusted entity stores a list of authenticated entities and adds the second entity to the list when the trusted entity authenticates the second entity.

20. (original) The apparatus of claim 17, wherein the trusted entity comprises a vehicle manufacturer public key, wherein the trusted entity requests, from the second entity, a certificate comprising a vehicle manufacturer signature and, in response to the request for the certificate, receives a message comprising the requested certificate, and wherein the trusted entity authenticates the second entity based on the received message.

21. (original) The apparatus of claim 20, wherein the message comprising a vehicle manufacturer signature further comprises a second entity manufacturer signature and a second entity signature.

22. (withdrawn)

23. (withdrawn)

24. (original) The apparatus of claim 17, wherein the trusted entity generates a session key when the second entity is an authenticated entity and securely conveys the session key to the second entity.

25. (original) The apparatus of claim 17, wherein the trusted entity conveys a service grant to the second entity when the second entity is an authenticated entity.

26. (original) The apparatus of claim 17, wherein the second entity is a vehicle system that comprises vehicle system information and wherein the trusted entity retrieves vehicle system status information from the vehicle system and determines whether to reprogram the entity based on the vehicle system information.

27. (currently amended)   In a vehicle in wireless communication with an infrastructure, an apparatus comprising:

a first, trusted entity residing in the vehicle;

a second entity residing in the vehicle and in communication with the trusted entity; and

wherein the trusted entity receives a service request, determines whether the second entity is an authenticated entity in response to the service request, when the second entity is not an authenticated entity, authenticates the second entity to produce an authenticated entity, and grants the service request,

wherein the trusted entity comprises a vehicle manufacturer public key, wherein the trusted entity conveys a request to the second entity for a message comprising a vehicle manufacturer signature, wherein, in response to the request, the second entity conveys a message to the trusted entity comprising the vehicle manufacturer signature, and wherein the trusted entity authenticates the second entity based on the message,

wherein the trusted entity is a vehicle gateway, and

wherein the second entity is one of a wireless gateway, a vehicle system, and a user system.

28. (original) The apparatus of claim 27, wherein the trusted entity receives the service request from the infrastructure.

29. (original) The apparatus of claim 27, wherein the second entity conveys the service request to the trusted entity.

30. (original) The apparatus of claim 27, wherein the trusted entity stores a list of authenticated entities and determines whether the second entity is an authenticated entity by reference to a list of authenticated entities.

31. (original) The apparatus of claim 27, wherein the trusted entity stores a list of authenticated entities and adds the second entity to a list of authenticated entities when the trusted entity authenticates the second entity

32. (withdrawn)

33. (original) The apparatus of claim 27, wherein the trusted entity comprises a vehicle manufacturer public key, wherein the second entity comprises a second entity private key, a certificate having a vehicle manufacturer signature, and a second entity manufacturer signature, wherein the trusted entity conveys a request to the second entity for a message comprising the vehicle manufacturer signature, wherein, in response to the request, the second entity conveys a message to the trusted entity comprising the vehicle manufacturer signature, the second entity manufacturer signature, and a second entity signature, and wherein the trusted entity authenticates the second entity based on the message.

34. (original) The apparatus of claim 33, wherein the trusted entity authenticates the second entity based on verification of at least one of the vehicle manufacturer signature, the entity signature, and the entity manufacturer signature.

35. (original) The apparatus of claim 27, wherein the trusted entity conveys a service grant to the second entity when the second entity is an authenticated entity.

36. (original) The apparatus of claim 27, wherein the trusted entity generates a first random number and conveys, to the second entity, the first random number and a request that the second entity send a certificate comprising a vehicle manufacturer signature, wherein the second entity generates a second random number and conveys, to the trusted entity, a message comprising the first random number, the second random number, and the certificate having the vehicle manufacturer signature, and wherein the trusted entity authenticates the second entity based on the message.

37. (original) The apparatus of claim 36, wherein the message further comprises an entity signature and an entity manufacturer signature.

38. (original) The apparatus of claim 27, wherein, when the second entity is an authenticated entity, the trusted entity determines whether to reprogram the entity and, in response to a determination to reprogram the entity, reprograms the second entity with new software.

39. (original) The apparatus of claim 38, wherein the second entity is a vehicle system that comprises vehicle system information and wherein the trusted entity retrieves vehicle system status information from the vehicle system and determines whether to reprogram the entity based on the vehicle system information.

40. (original) The apparatus of claim 38, wherein, when the trusted entity reprograms the second entity, the second entity executes the new software to produce a result and conveys the result to the trusted entity, and wherein the trusted entity determines whether the reprogramming is successful based on the result.

41. (original) The apparatus of claim 27, wherein the second entity is a vehicle system that comprises vehicle system status information and wherein, when the second entity is an authenticated entity, the trusted entity retrieves vehicle system status information from the vehicle system and sends the retrieved vehicle system information to the infrastructure.

42. (original) The apparatus of claim 41, wherein, in response to sending the vehicle system status information to the infrastructure, the trusted entity receives new software and reprograms the second entity with the new software, wherein the second entity executes the new software to produce a result and conveys the result to the trusted entity, and wherein the trusted entity determines whether the reprogramming is successful based on the result.

43. (original) The method of claim 41, wherein the vehicle system status information comprises at least one of a current date, a current time, a current location of the vehicle, a current mileage of the vehicle, a vehicle identification number, and an engine diagnostic code.

44. (original) The method of claim 27, wherein the trusted entity generates a session key when the second entity is an authenticated entity and securely conveys the session key to the authenticated entity.

45. (previously presented)   The method of claim 1 wherein a vehicle gateway performs the steps of receiving, determining, authenticating, and granting.

46. (previously presented)   The method of claim 1, further comprising steps of:
        when the entity is an authenticated entity, receiving services requests from the authenticated entity.